

OPERATING MANUAL  
FOR  
“BELL MIGHTY”  
MODEL:ESH8N SERIES

## SAFETY INSTRUCTION

Prior to using ESH series, read this manual thoroughly to understand the correct handling and operating procedure.

Observe the WARNING and CAUTIONS given by this manual, without failure, for safe operation of the ESH series.

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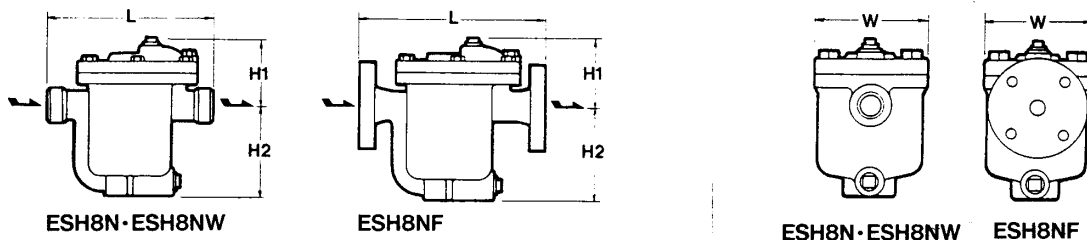
1. Introduction

“Bell Mighty” inverted bucket Model ESH8N Series are for multipurpose steam trap especially for small capacity.

It is made in three connection types screw threaded, flanged and socket weld.


This manual contains Installation, Trouble Shooting and Maintenance etc.. Never fail to read them to the end before using.


2. Dimensions and Specifications



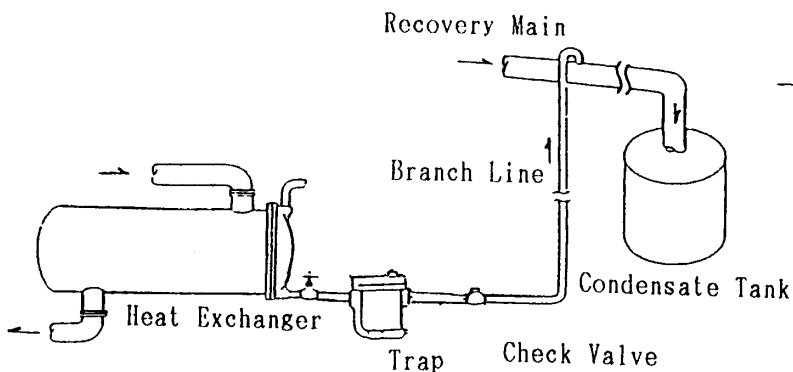
Model No.	Connection	Size mm (inch)	Operating Pressure (MPa)	Maximum Temperature °C (°F)	Material of Body	Dimensions (mm)				Weight (kg)
						L	H1	H2	W	
ESH8N-21	Screwed	15 (1/2)	0.01	425 (797)	Cast Carbon Steel	220	103	112	146	10.5
		20 (3/4)	to							
		25 (1)	2.1							
ESH8N-45		15 (1/2)	0.01							
		20 (3/4)	to							
		25 (1)	4.4							
ESH8NF-21	Flanged	15 (1/2)	0.01							
		20 (3/4)	to							
		25 (1)	2.1							
ESH8NF-45		15 (1/2)	0.01							
		20 (3/4)	to							
		25 (1)	4.4							
ESH8NW-21	Socket Weld	15 (1/2)	0.01							
		20 (3/4)	to							
		25 (1)	2.1							
ESH8NW-45		15 (1/2)	0.01							
		20 (3/4)	to							
		25 (1)	4.4							

### 3. Installations

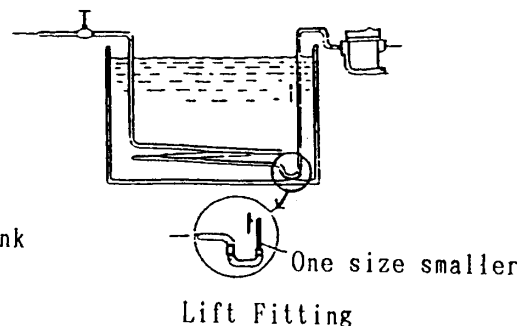
 CAUTIONS	Before installing the trap always blow off the slugges, scales, etc. from the piping.
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 CAUTIONS	This "Bell Mighty" inverted bucket Model ESH series can only be installed horizontally.
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- A. Install trap according to the direction of the arrow on the body.
- B. Pipe the outlet condensate recovery piping at the lowest point of the steam using equipment.  
The trap should be installed that condensate will flow naturally into the trap.
- C. When recovering the condensate outlet branch line should be piped from the steam trap as the drawing A below.  
Install a check valve on the downstream side on the trap.
- D. If the trap is installed higher than the steam using machinery please install lift fitting as drawing B below for better performance.
- E. If installed on cylinder dryer please install lower than the lowest point of the cylinder and minimize the horizontal piping.  
Also do not insulate the piping.
- F. The trap should be installed for easy maintenance.
- G. Upon start up inspect the followings.
  - 1) Leak from the sealing of Body(1) and Cover(2) if leaking retighten the Cover Bolt(20) evenly.
  - 2) Leak from the Plug(3), (4).  
Re-tighten them.



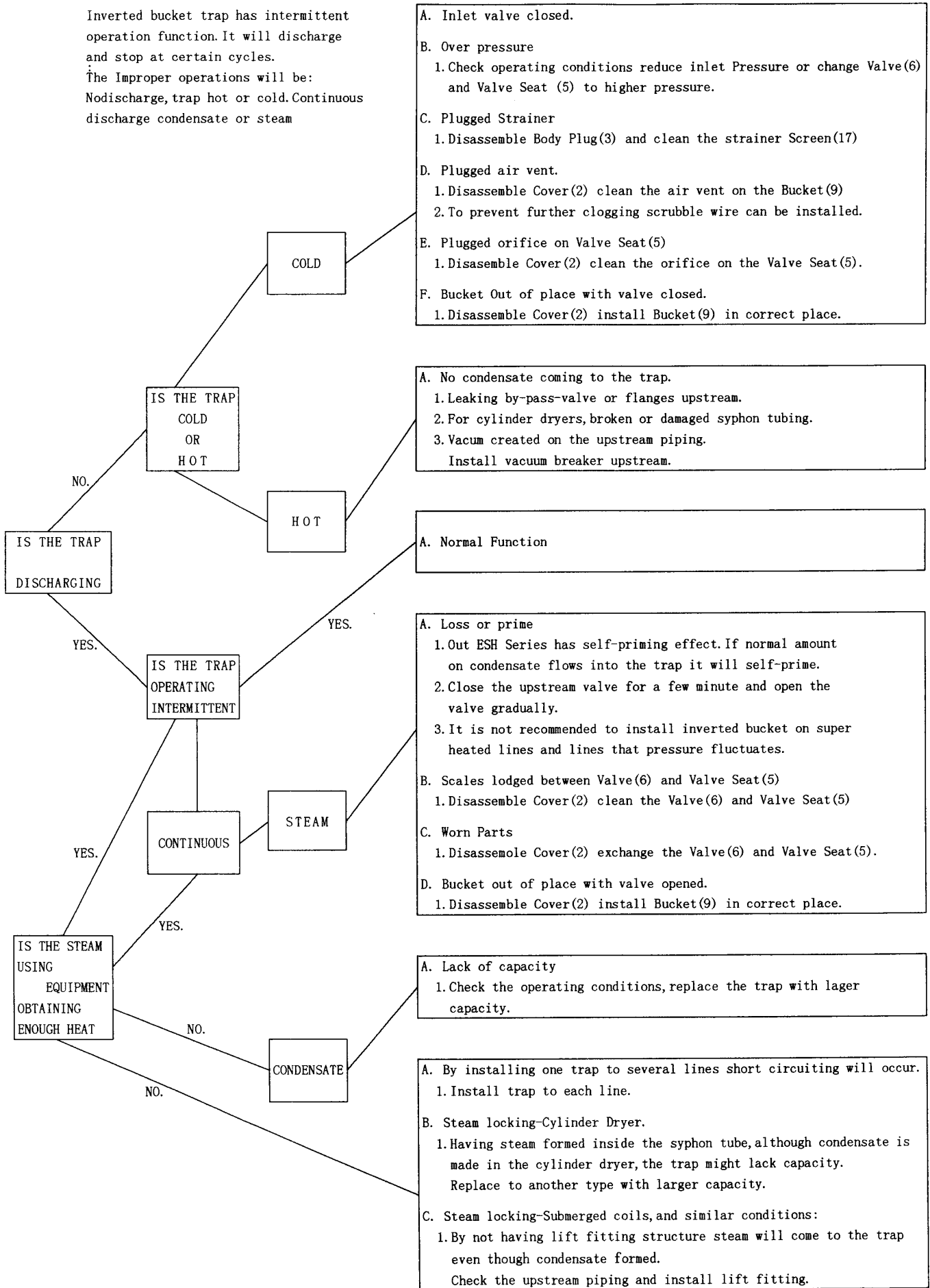
Drawing A




Drawing B

## 4. Troutbe Shooting

Inverted bucket trap has intermittent operation function. It will discharge and stop at certain cycles.  
 The Improper operations will be:  
 Nodischarge, trap hot or cold. Continuous discharge condensate or steam

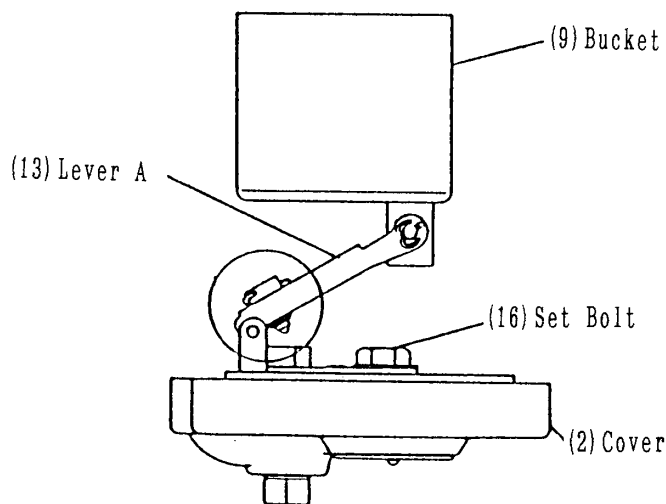


## 5. Maintenance, Disassembling and Assembling

 WARNING	When disassembling a hot trap be sure to release the pressure inside to atmospheric pressure, and cool the trap before the work.
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- A. Disassemble Body Plug(3) take out the Screen(17) check and clean.
- B. Disassemble Cover Bolt(20), (22) take off the Cover(2), the internals (Valve Seat(5), Valve(6), Valve Holder(7), Pin(8), Bucket(9), Eye Bolt(10), Eye Bolt Pin(12), Lever B(11), Lever A(13), Bracket(14), Pin(15), Set Bolt(16), \*Bi-Metal(27)) will come together as the drawing C.


\*For only ESH8N-21 Type

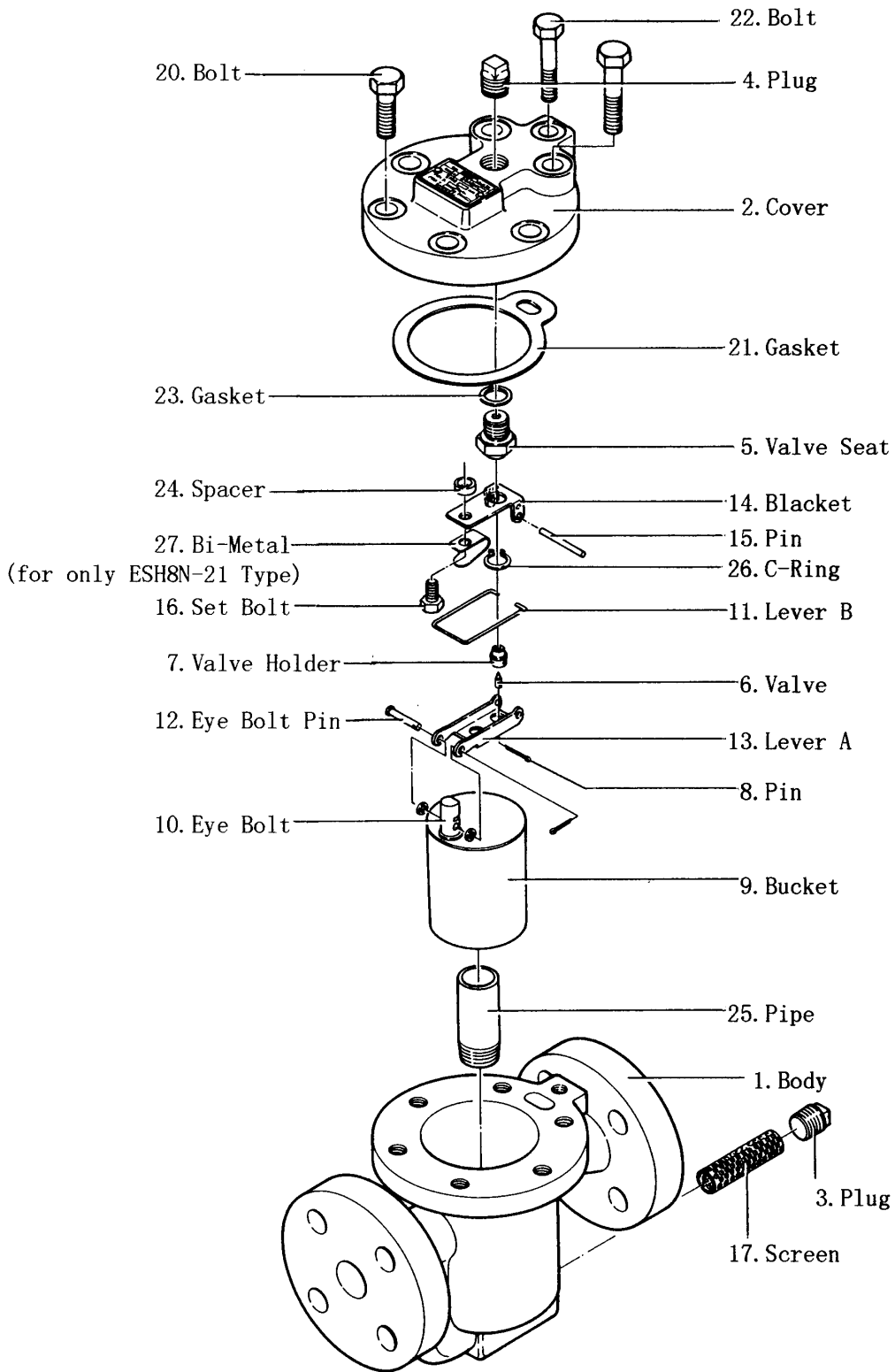


Drawing C

- C. Take off the Pin(15) unscrew the Set Bolt(16) also unscrew the Valve Seat(5) with a wrench.
  - D. Take off the Pin(8) the Valve(6) and Valve Holder(7) comes apart from the Lever A(13).
  - E. Take off the split pin and Eye Bolt Pin(12) the Bucket(9) will come apart.
  - F. Clean and check the parts accordingly if all the parts are in normal condition install in the opposite of disassembling. If parts are worn or defected please replace.
- Please thoroughly check the Valve(6), Valve Seat(5) and Valve Holder(7).  
When replacing the Valve(6) and Valve Seat(5) always replace the two together as they are lapped together in the factory.

 CAUTIONS	When reassembling always replace the Cover Gasket(21) to new one.
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 CAUTIONS	Also the Cover Bolt(20), (22) should be tightened evenly.
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No.	Parts	Tool	Size	Clamp Torque
5	Valve Seat	Wrench	23mm	1200kgf·cm
16	Set Bolt	Wrench	13mm	210kgf·cm
20	Cover Bolt	Wrench	19mm	1200kgf·cm
22	Cover Bolt	Wrench	17mm	800kgf·cm



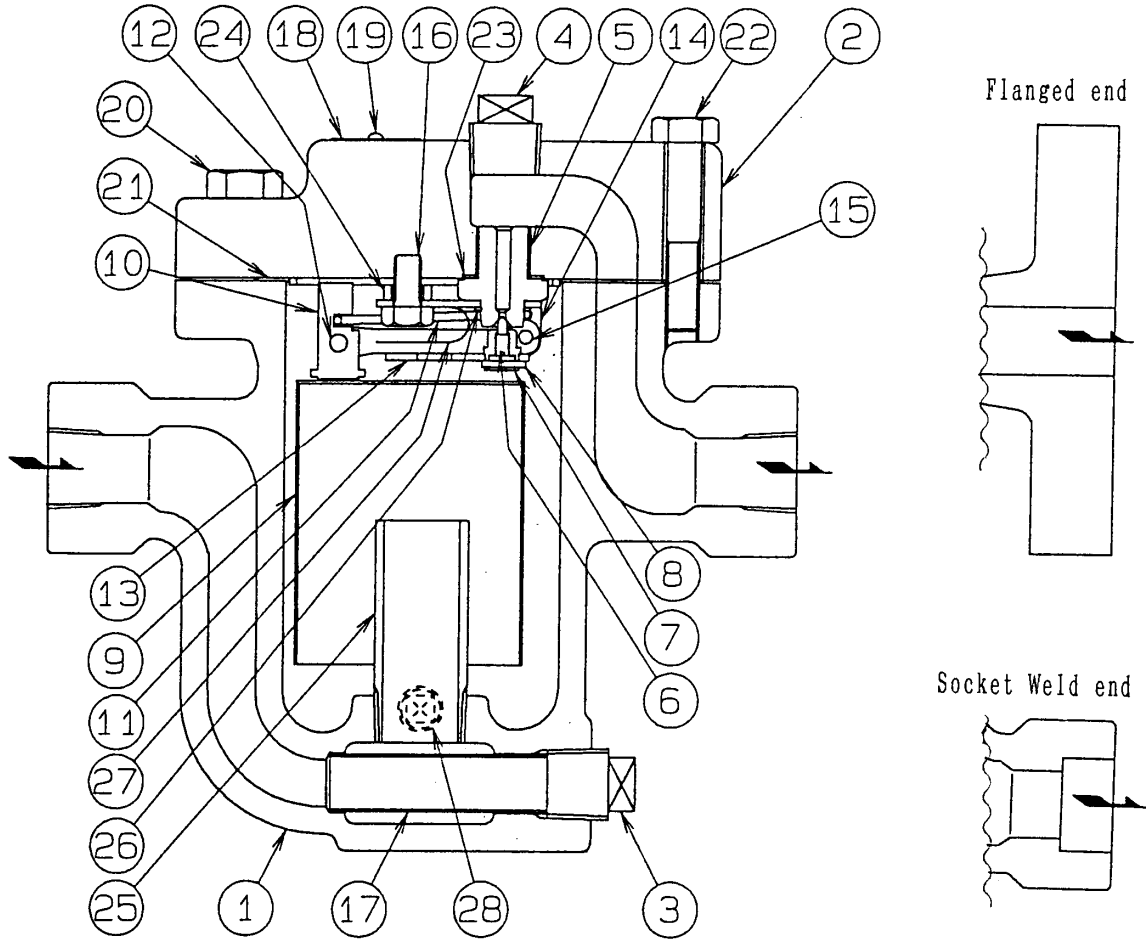
6. Construction

ESH8N-21

ESH8NF-21

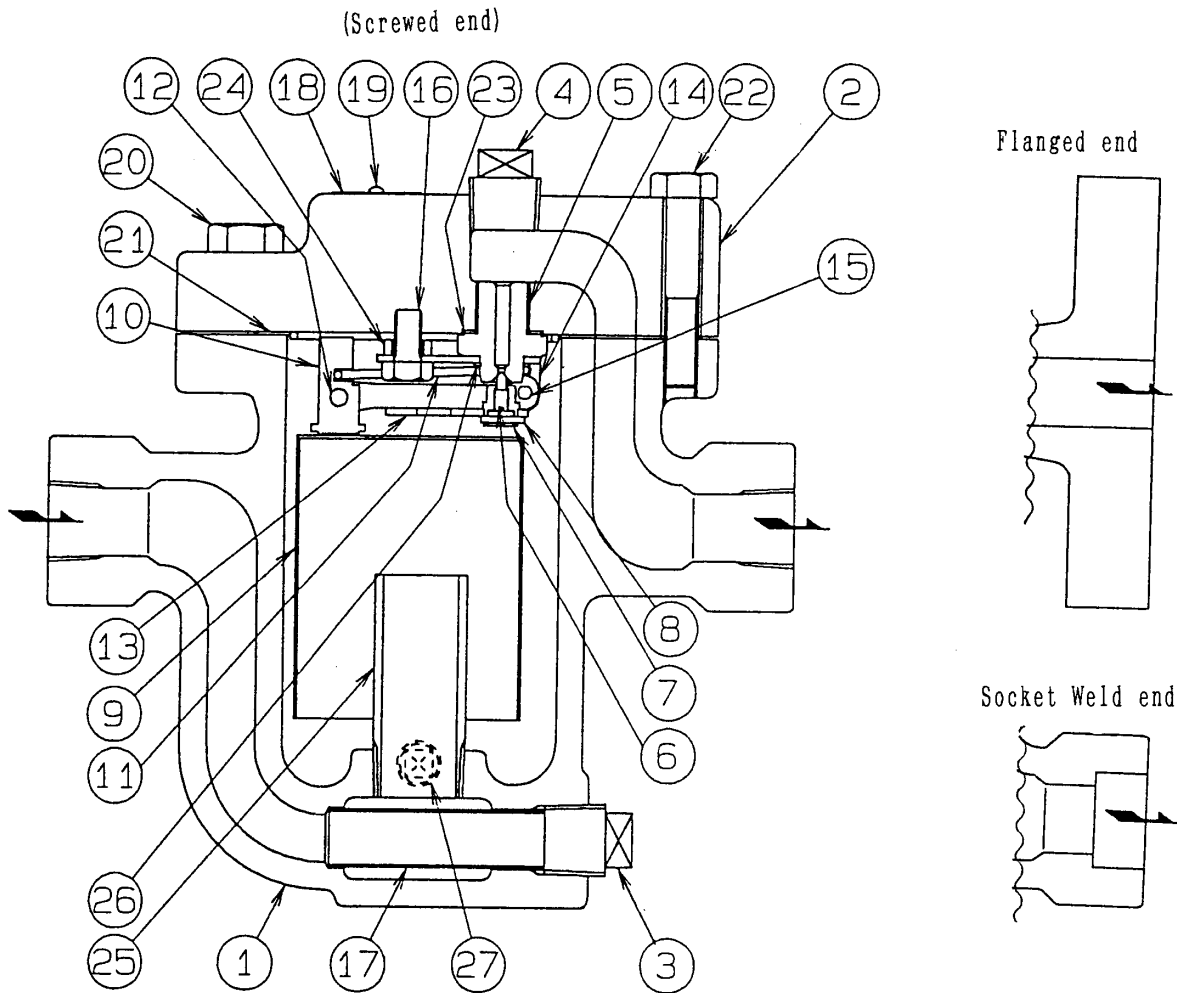
ESH8NW-21

(Screwed end)



- |                 |                |
|-----------------|----------------|
| 1. Body         | 15. Pin        |
| 2. Cover        | 16. Set Bolt   |
| 3. Plug         | 17. Screen     |
| 4. Plug         | 18. Name Plate |
| 5. Valve Seat   | 19. Rivet      |
| 6. Valve        | 20. Bolt       |
| 7. Valve Holder | 21. Gasket     |
| 8. Pin          | 22. Bolt       |
| 9. Bucket       | 23. Gasket     |
| 10. Eyebolt     | 24. Spacer     |
| 11. Lever B     | 25. Pipe       |
| 12. Eyebolt Pin | 26. C-Ring     |
| 13. Lever A     | 27. Bi-Metal   |
| 14. Bracket     | 28. Plug       |

ESH8N-45  
 ESH8NF-45  
 ESH8NW-45



- |                 |                |
|-----------------|----------------|
| 1. Body         | 15. Pin        |
| 2. Cover        | 16. Set Bolt   |
| 3. Plug         | 17. Screen     |
| 4. Plug         | 18. Name Plate |
| 5. Valve Seat   | 19. Rivet      |
| 6. Valve        | 20. Bolt       |
| 7. Valve Holder | 21. Gasket     |
| 8. Pin          | 22. Bolt       |
| 9. Bucket       | 23. Gasket     |
| 10. Eyebolt     | 24. Spacer     |
| 11. Lever B     | 25. Pipe       |
| 12. Eyebolt Pin | 26. C-Ring     |
| 13. Lever A     | 28. Plug       |
| 14. Bracket     |                |